UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

December 06, 2005

MEMORANDUM

SUBJECT: Response to National Remedy Review Board Recommendations for the Aerojet Superfund Site, Perimeter Operable Unit (OU5)

FROM: Keith Takata, Director
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TO: Jo Ann Griffith, Chair
National Remedy Review Board
Office of Solid Waste and Emergency Response

Purpose

This memorandum provides Region 9's response to the October 26, 2005 advisory recommendations of the National Remedy Review Board (NRRB) regarding the proposed remedial action for the Perimeter Operable Unit (OU5) at the Aerojet Superfund Site.

Response to NRRB Advisory Recommendations

- NRRB Comment #1: The time required to clean up groundwater to remedial action objectives (RAOs) at different zones within OU5 was estimated using groundwater flow modeling (travel times based on particle tracking). According to the Region, solute fate and transport was accounted for by assuming a given number of pore volumes necessary to flush a specific contaminant out of the aquifer. No discussion of the approach or assumptions used to estimate pore volumes of flushing needed to achieve RAOs was presented to the Board. Because there can be significant uncertainties associated with estimating remedial time frames using this approach, the Board recommends that the method used and the uncertainties associated with these estimates be described in the administrative record. This issue is particularly important when estimated remedial time frames are used as a criterion to select one ground-water extraction strategy over another.

  Region 9 Response to Comment #1: In Part 1 of Volume 1 of the Feasibility Study (FS) for OU5, the number of pore volumes methodology was presented. The particle tracking model results for each zone were discussed in Appendix H of Part 1 of Volume 5. The Number of Pore Volumes (NPV) was estimated based on the following formula:

$NPV = -R\ln(C_{wt}/C_{wo})$

Where "R" equals chemical specific retardation factor, "ln" is the natural log, "C_{wt}" is the chemical-specific concentration, and "C_{wo}" is the initial chemical concentration as provided for by *Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites, OSWER Directive 9238.1-02, December 1988.* The FS will be modified to provide in one section the method used and the uncertainties associated with the estimates.

- NRRB Comment #2: The Board notes that the estimated cleanup durations are based upon first controlling or removing up-gradient contaminant sources. As in the Board comments on OU3 in 2000, the Board again emphasizes the importance of expediting the cleanup efforts in the source area given the lengthy restoration time frame. Source control in the near-term is critical to reducing overall remedy cost and cleanup time frames.

  Region 9 Response to NRRB Comment #2: Region 9 shares the NRRB's concern for focusing on the cleanup efforts in the source areas to expedite the overall site remedy. A work plan to address all source site remediation has been approved. There will be five source area operable units (OUs). Schedules have been developed for the first two source OUs which will be initiated as parallel efforts. The schedules for the remaining three source area OUs are to be developed by the end of this calendar year. In addition, Region 9 has added a second Remedial Project Manager to the site to aid in expediting the effort.

- NRRB Comment #3: With respect to the voluntary cleanup of the landfill, the Board understands the PRP will undertake this action pursuant to state law, and subject to state oversight and approval. As such, the Board did not specifically review this action. Nonetheless, based on information presented to the Board regarding the state's proposed cleanup levels, it appears that this voluntary cleanup should be consistent with the Region's preferred ground-water cleanup approach. The Board recommends the Region address the effectiveness of the voluntary cleanup and its relation to the Superfund response action in any potential future NPL deletion rulemaking process.

  Region 9 Response to NRRB Comment #3: Region 9 will characterize the voluntary cleanup of the landfill in the OU5 Record of Decision (ROD) as an action to be done under state oversight. The EPA will perform a risk assessment after the landfill has been fully removed.

- NRRB Comment #4: In its letter to the Board, Aerojet expressed concern about the ground-water cleanup goals for TCE and NDMA of 0.8 ppb and 1.3 ppt, respectively. During the meeting, the Region indicated that the contaminant level criteria, in fact, were 5.0 ppb for TCE and 2.0 ppt for NDMA. The sources of these criteria are the MCL for TCE and the State's 10^{-6} risk-based value for NDMA. The Board supports the Region's use of the MCL for TCE as a containment level.

  The Region further indicated that due to analytical capability limitations, a practical quantitation limit (PQL) of 5 ppt would initially be considered the enforceable cleanup

criteria for NDMA. The Board recommends that the decision documents clearly describe the ground-water cleanup criteria and their basis.

Region 9 Response to NRRB Comment #4: Region 9 will ensure that the OU5 ROD clearly describes the groundwater cleanup criteria and their basis with particular emphasis on N-Nitrosodimethylamine.

- NRRB Comment #5: The Board notes that this remedial action will be documented in an interim Record of Decision (ROD) that need not address compliance with all ARARs at this time, e.g., cleanup levels for ground-water restoration.

  Region 9 Response to NRRB Comment #5: Region 9 concurs with the NRRB recommendation that the interim OU5 ROD not include Applicable or Relevant and Appropriate Requirements that address cleanup criteria and their bases that would be more properly addressed in the final OU5 ROD.

- NRRB Comment #6: The package presented to the Board did not contain a discussion of institutional controls (ICs) that might be necessary to ensure that the residents do not use contaminated ground water. The Region indicated at the meeting, that use restrictions are already in place under existing state authorities for on-site portions of the remedy. The Board recommends that the Region recognize these ICs in the decision documents and include others that may be necessary.

  Region 9 Response to NRRB Comment #6: Region 9 will ensure that institutional controls currently in place for the on-property portion of the remedy are discussed in the OU5 ROD. Region 9 will also include a discussion of any additional controls needed for the off-property portion of the remedy.

- NRRB Comment #7: The package presented to the Board included a range of capture zone and limited mass removal scenarios for Zones 1 and 2. The Board notes that the number of alternatives could be simplified in the decision documents. In addition, the Board recommends that the alternatives analysis in the decision documents more fully explain how each alternative meets the Region's objectives related to plume capture and mass removal.

  Region 9 Response to NRRB Comment #7: Region 9 will modify the FS to reduce the number of existing alternatives in order to simplify the OU5 ROD. In addition, the alternatives analysis will include a more detailed explanation of how each alternative meets Region 9's objectives related to plume capture and mass removal.

- NRRB Comment #8: The RAO to "reduce additional mass to enhance the final remedy" is written broadly and could be interpreted in a number of ways. The Board recommends that this RAO be rephrased to clarify the purpose of this additional mass removal.

  Region 9 Response to NRRB Comment #8: Region 9 will revise the remedial action mass removal objective to include reasons for additional mass removal with respect to each affected zone in OU5.

We appreciate this opportunity to respond to the NRRB's recommendations and would be happy to answer any questions you may have on our response.